REMARKS/ARGUMENTS

Favorable reconsideration of this application, in view of the present amendment and in light of the following discussion, is respectfully requested.

Claims 7-15 and 18-26 are pending. In the present amendment, Claims 7-13 are currently amended, Claims 16 and 17 are canceled without prejudice or disclaimer, and new Claims 18-26 are added. Support for the present amendment can be found in the original specification, for example, at page 3, line 6 to page 5, line 5, at page 8, line 18 to page 10, line 27, and in Figures 2 and 4. Thus, it is respectfully submitted that no new matter is added.

In the outstanding Office Action, Claims 7, 12, and 13 were rejected under 35 U.S.C. §102(b) as anticipated by Digeser et al. (U.S. Patent No. 6,082,325, hereinafter "Digeser"); Claim 14 was rejected under 35 U.S.C. §103(a) as unpatentable over Digeser in view of Odendall (U.S. Patent No. 6,823,666); Claims 8-11 were rejected under 35 U.S.C. §103(a) as unpatentable over Digeser in view of Kitahara et al. (U.S. Patent No. 6,962,045, hereinafter "Kitahara"); Claim 15 was rejected under 35 U.S.C. §103(a) as unpatentable over Digeser in view of Kitahara, and further in view of Odendall; and Claims 16 and 17 were rejected under 35 U.S.C. §103(a) as unpatentable over Digeser in view of Kawatani et al. (U.S. Patent No. 6,666,019, hereinafter "Kawatani").

In response to the rejections under 35 U.S.C. §102(b) and 35 U.S.C. §103(a), Applicants respectfully request reconsideration of these rejections and traverse these rejections, as discussed below.

Amended Claim 7 recites:

> A method for control of a motorization system including a diesel engine, an air-intake circuit, and an exhaust circuit for exhaust gas originating from the engine, the intake circuit including an adjusting mechanism for controlling flow of air entering the engine and the exhaust circuit including a nitrogen oxides trap for storage of nitrogen oxides contained in the exhaust gases, the method performing a regeneration mode to

> regenerate the nitrogen oxides trap by supplying reducing exhaust gases, the method comprising:
>
> determining an index value of air flow corresponding to an operating point of the engine during the regeneration mode;
>
> instructing the adjusting mechanism to obtain an air flow close to the index value;
>
> measuring a variable back-pressure in the exhaust circuit;
>
> performing a primary and secondary injection of fuel, the secondary injection being performed during an expansion phase and operative to maintain the exhaust gases in a reducing state; and
>
> ***maintaining a constant fuel flow amount of the primary injection, increasing a fuel flow amount of the secondary injection, and increasing the air flow according to an increase in the variable back-pressure*** such that said diesel engine delivers a constant torque during a transition to said regeneration mode.

For diesel engines including a nitrogen oxides trap, the nitrogen oxides stored within the trap must be purged at regular intervals.[1] This purging operation is also known as a rich-mixture operation in which the nitrogen oxides trap is regenerated by supplying reducing exhaust gases.[2] During this regeneration mode, the quantity of air admitted into the combustion chamber is reduced and therefore torque produced by the engine is also reduced.[3] Additionally, a particle filter, or other accessory, downstream of the nitrogen oxides trap can introduce a variable exhaust back-pressure in the exhaust circuit.[4] Consequently, even with a predetermined air flow and quantity of fuel, the delivered torque varies as a function of this exhaust back-pressure.[5]

Accordingly, in the method for control of a motorization system recited in amended Claim 7, a variable back-pressure in the exhaust circuit is measured and, in response to the

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[1] See the original specification, for example, at page 1, lines 23-28.
[2] See the original specification, for example, at page 1, line 27 to page 2, line 4.
[3] See the original specification, for example, at page 2, lines 6-15.
[4] See the original specification, for example, at page 3, lines 24-26.
[5] See the original specification, for example, at page 3, lines 26-28.

measured variable back-pressure, a constant fuel flow amount of the primary injection is maintained, a fuel flow amount of the secondary injection is increased, and the air flow is also increased when the variable back-pressure increases such that the diesel engine delivers a constant torque during a transition to said regeneration mode. It is respectfully submitted that the cited references do not disclose or suggest every feature recited in amended Claim 7.

Digeser describes a process for operating a diesel engine using an automatic engine control which automatically controls the diesel engine as a function of characteristic diagrams between a rich operation and a lean operation.[6] Additionally, Digeser describes a pilot injection 40, a main injection 42 and, a fuel post-injection which can be used at various operating points with respect to top dead center during a normal (lean) condition or a regeneration (rich) condition.[7] Additionally, Digeser describes an exhaust gas recirculation pipe 15 which can reduce a scavenging gradient between exhaust back-pressure and a suction pipe 16.[8]

However, it is respectfully submitted that Digeser does not disclose or suggest "maintaining a constant fuel flow amount of the primary injection, increasing a fuel flow amount of the secondary injection, and increasing the air flow according to an increase in the variable back-pressure such that said diesel engine delivers a constant torque during a transition to said regeneration mode, " as recited in amended Claim 7.

Instead, as discussed above, Digeser describes alternating the timing of various injections in relation to an operating position of the engine to switch between a lean condition and a rich condition. However, Digeser does not disclose or suggest altering a fuel flow amount of the pilot injection 40, 44 or the main injection 42, 46, or an air flow amount based on an increase in a variable back-pressure during a transition to the rich condition.

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[6] See Digeser, at column 1, lines 9-12.
[7] See Digeser, at column 7, lines 39-67 and in Figure 3.
[8] See Digeser, at column 8, lines 59-66 and column 9, lines 9-21 and in Figure 1.

Accordingly, it is respectfully submitted that Digeser does not disclose or suggest every feature recited in amended Claim 7. Thus, it is respectfully requested that the rejection of Claim 7, and all claims dependent thereon, as anticipated by Digeser be withdrawn.

Claim 12 recites, in part, a motorization system implementing a method for control of the motorization system, including a control unit that "maintains a constant fuel flow amount of the primary injection, increases a fuel flow amount of the secondary injection, and increases the air flow according to an increase in the variable back-pressure such that said diesel engine delivers a constant torque during a transition to said regeneration mode."

Accordingly, in view of the above discussion of Digeser with respect to Claim 7, it is respectfully submitted that Digeser does not disclose or suggest every feature recited in amended Claim 12. Thus, it is respectfully requested that the rejection of Claim 12 as anticipated by Digeser be withdrawn.

Regarding the rejection of Claim 14 as unpatentable over Digeser in view of Odendall, it is noted that Claim 14 is dependent on Claim 7, and thus is believed to be patentable for at least the reasons discussed above with respect to Claim 7. Further, it is respectfully submitted that Odendall does not cure any of the above-noted deficiencies of Digeser. Accordingly, it is respectfully submitted that Claim 14 is patentable over Digeser in view of Odendall.

Regarding the rejection of Claims 8-11 as unpatentable over Digeser in view of Kitahara, it is noted that Claims 8-11 are dependent on Claim 7. Accordingly, Applicants again respectfully submit that Digeser does not disclose or suggest every feature recited in amended Claim 7.

Kitahara describes an exhaust gas apparatus and a method for purifying an exhaust gas in an internal combustion engine.[9] Specifically, Kitahara describes an engine 1

[9] See Kitahara, at column 1, lines 8-10.

controlled by an engine control unit 20 that reads various sensor signals and detects an engine rotation speed Ne, an opening angle APO of the acceleration pedal, catalyst temperature, an exhaust gas pressure in the inlet side of the diesel particulate filter DPF 14, a DPF temperature, and an exhaust λ in the outlet side of DPF 14.[10] Additionally, Kitahara describes that, as the particulate matter deposit amount of DPF 14 increases, an exhaust gas pressure in the inlet side of DPF 14 increases, and that this detected pressure is compared to a reference pressure to estimate the amount of particulate matter deposited.[11] Further, Kitahara describes that an exhaust gas pressure in the inlet side of DPF 14 is determined for each engine operating condition (Ne, Q) at a point where the particulate matter amount on a DPF 14 reaches a predetermined value 1 so that the control unit 20 can determine when it is time to regenerate the DPF 14.[12]

However, it is respectfully submitted that Kitahara does not disclose or suggest "maintaining a constant fuel flow amount of the primary injection, increasing a fuel flow amount of the secondary injection, and increasing the air flow according to an increase in the variable back-pressure such that said diesel engine delivers a constant torque during a transition to said regeneration mode," as recited in amended Claim 7.

Instead, as discussed above, Kitahara merely describes recording engine operating conditions (Ne, Q) for different exhaust gas pressures to determine when to regenerate the DPF 14. Kitahara is silent with regards to adjusting the operating conditions based on an increase in the gas pressure. Thus, Kitahara does not disclose or suggest adjusting the primary or secondary injection, or a fuel full amount based on an increase in the exhaust gas back-pressure. Therefore, it is respectfully submitted that Kitahara does not cure the above-noted deficiencies of Digeser.

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[10] See Kitahara, at column 3, lines 33-37 and in Figure 1.
[11] See Kitahara, at column 3, line 60 to column 4, line 5 and in Figure 2.
[12] See Kitahara, at column 4, lines 46-57 and in Figure 13.

Accordingly, it is respectfully submitted that the combination of Digeser and Kitahara does not disclose or suggest every feature recited in amended Claim 7. Thus, it is respectfully requested that the rejection of Claims 8-11, which depend on Claim 7, as unpatentable over Digeser in view of Kitahara be withdrawn.

Regarding the rejection of Claim 15 as unpatentable over Digeser in view of Kitahara, it is noted that Claim 15 is dependent on Claim 7. Further, as discussed above, neither Kitahara nor Odendall cure the above-noted deficiencies of Digeser with respect to Claim 7. Accordingly, it is respectfully requested that the rejection of Claim 15 as unpatentable over Digeser in view of Kitahara, and further in view of Odendall be withdrawn.

Turning now to the rejection of Claims 16 and 17 as unpatentable over Digeser in view of Kawatani, it is noted that Claims 16 and 17 are hereby canceled. Thus, it is respectfully submitted that this rejection is moot. Further, Applicants respectfully submit that Kawatani does not cure the above-noted deficiencies of the cited references.

New Claims 18-26 are added by the present amendment. Support for the new claims can be found in the original specification, for example, at page 8, line 18 to page 10, line 27, in the original claims, and in Figures 1, 2, and 4. Thus, it is respectfully submitted that no new matter is added.

Independent Claim 18 recites, in part, a method for control of a motorization system, including "increasing a fuel flow amount of the primary injection, decreasing a fuel flow amount of the secondary injection, and maintaining the air flow at a constant amount according to an increase in the variable back-pressure such that said diesel engine delivers a constant torque during a transition to said regeneration mode."

In view of the above discussion of the cited references, it is respectfully submitted that the cited references do not disclose or suggest adjusting the primary injection and secondary injection amounts and maintaining the air flow at a constant amount when the

variable back-pressure increases. Accordingly, it is respectfully submitted that Claim 18, and all claims dependent thereon, patentably define over the cited references.

Independent Claim 26 recites, in part, a motorization system implementing a method for control of the motorization system, including a control unit that "increases a fuel flow amount of the primary injection, decreases a fuel flow amount of the secondary injection, and maintains the air flow at a constant amount according to an increase in the variable back-pressure such that said diesel engine delivers a constant torque during a transition to said regeneration mode."

In view of the above discussion of the cited references, it is respectfully submitted that the cited references do not disclose or suggest every feature recited in new Claim 26. Thus, it is respectfully submitted that Claim 26 patentably defines over the cited references.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. A notice of allowance is earnestly solicited.

Respectfully submitted,

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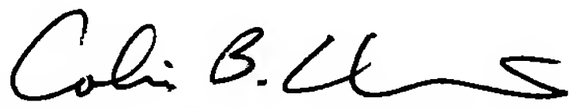

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